

spiral and axial sculpture giving clathrate aspect to whole teleoconch. Spiral sculpture of 6 or 7 cordlets on sutural ramp (corresponding to adapical half of each whorl but last), and 18–23 larger spiral cords on remainder of whorl (values given for last whorl). Interspaces between cords at least twice the width of those between narrower, adapical cordlets. Spiral ribs on base not differing from those on remainder of last whorl, except for one weaker cordlet intercalated with each of 4 or 5 abapical cords. Axial ribs about 19 in last whorl. Aperture elongate (length/width about 3). Outer lip simple, thin. Interior of aperture opaque. Parietal region smooth. Columella strongly arched, with siphonal fold and 4 or 5 columellar plaits.

Radula (Figures 3–5): Radular ribbon uniserial. Rachidian 0.12 mm wide (holotype), tricuspid, basal plate strongly curved. Lateral and central cusps curved, defining planes that form respectively 10 and 20 degree angles with basal plate and radular ribbon (Figure 4). Cusps growing posteriorly from basal plate. Region of intersection of external edge of lateral cusp with anterior edge of basal plate pointed, forming well-defined angle. Central and lateral cusps with same length, but extremity of central cusp slightly more posterior than extremities of lateral cusps due to curvature of basal plate. External edges of lateral cusps forming 40 degree angle, slightly curved inwards in dorsal view. Dorsal surface of basal plate impressed by extremity of preceding teeth. Extremities of cusps interlock with these impressions in subsequent tooth, when radula not in protracted condition.

Holotype: MORG 24489, 35.1 mm length, 13.7 mm width, collected alive.

Type locality: Continental slope off the coast of Rio Grande do Sul State, Brazil, 32°25'S, 50°11'W, 460 m depth, muddy bottom, N. Oc. *Atlântico Sul*, May 1986, rectangular dredge.

Paratypes: Paratype 1, MNHN, 35.8 mm length, 14.3 mm width; paratype 2, USNM 860175, 30.3 mm length, 12.1 mm width; paratype 3, MNRJ 5767, 22.5 mm length, 9.7 mm width; all from type locality.

Etymology: The species is respectfully dedicated to the memory of the late Dr. Gilbert L. Voss and his many contributions in malacology and deep-water biology.

Remarks: Species in the genus *Nanomelon* are among the smaller ones in the subfamily Zidoninae (see WEAVER & DUPONT [1970] for dimensions of species in other genera). The small *Alcithoe grahami* (Powell, 1965) from New Zealand (about 32 mm length) was considered by DELL (1978)

Table 1

Nanomelon vossi sp. nov. Linear shell measurements and meristic counts for the holotype (Hol) and paratypes 1–3 (Pa1–Pa3). All are from the type locality, off Rio Grande do Sul State, Brazil, 32°25'S, 50°11'W, 460 m depth.

| Character | Hol | Pa1 | Pa2 | Pa3 |
|--------------------------------|------|------|------|------|
| Total length (mm) | 35.1 | 35.8 | 30.3 | 22.5 |
| Shell width (mm) | 13.7 | 14.3 | 12.1 | 9.7 |
| Length last whorl (mm) | 24.3 | 25.5 | 22.1 | 16.4 |
| Aperture length (mm) | 19.4 | 18.9 | 17.5 | 12.4 |
| Aperture width (mm) | 5.8 | 5.7 | 6.0 | 4.3 |
| Protoconch diameter (mm) | 1.8 | — | 1.8 | 2.0 |
| Protoconch whorls | 2.25 | — | 2.25 | 2.25 |
| Teleoconch whorls | 4.75 | 4.50 | 3.75 | 3.50 |
| Spire angle (degrees) | 34 | 39 | 41 | 40 |
| Spiral cords last whorl | 18 | 20 | 23 | 19 |
| Cordlets sutural ramp | 6 | 8 | 6 | 7 |
| Axial ribs last whorl | 19 | 20 | 13 | 13 |
| Length/width | 2.56 | 2.50 | 2.50 | 2.32 |
| Aperture length/length | 0.55 | 0.53 | 0.58 | 0.55 |
| Aperture length/aperture width | 3.34 | 3.32 | 2.92 | 2.88 |

to be a dwarf form of *A. wilsonae* (Powell, 1933). Poor preservation of the soft parts in *N. vossi* hampered the observation of anatomical structures used in the definition of the Zidoninae, and the present allocation is based solely on shell and radular characters.

Although only four individuals of the new species are known, adults of *Nanomelon vossi* seem on average even smaller than adults of *N. viperinus*. Both species show clathrate sculpture and a pattern of distinct, crowded spiral cordlets in the sutural ramp of whorls. *Nanomelon vossi* has a larger spire angle than *N. viperinus*, more convex whorls, and the protoconch diameter is about half of that in *N. viperinus*. As a consequence, the new species has a stubby, less elongate profile, with a more pointed apex. Cordlets and respective interspaces in the sutural ramp are not as distinctive and crowded as in *N. viperinus* and the remaining spiral cords are more numerous and interspaces much narrower in the new species. Interspaces are about three times wider than spiral cords in *N. viperinus*, but about the same width as cords in *N. vossi*. Values for the number of axial ribs in the last whorl overlap in the two species, but ribs in the new species are flatter, and the interspaces not as wide as in *N. viperinus*. Additionally, columellar and apertural regions are not as arched as in *N. viperinus*.

Differences in radular morphology are not remarkable, as expected between species of the same genus in the family

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Figure 5. Rachidian tooth. Scale bar equals 0.5 mm in Figures 3–5.

Figures 6–9. *Nanomelon viperinus* Leal & Bouchet, 1989. Holotype, off Rio de Janeiro, Brazil, 23°47'S, 42°10'W, 610 m depth. Figures 6, 7. Ventral and dorsal views of the shell. Scale bar

equals 10 mm in Figures 6 and 7. Figures 8, 9. SEM micrographs of radula; anterior margin of teeth towards the top of illustration. Figure 8. Radular ribbon. Figure 9. Rachidian tooth. Scale bar equals 0.5 mm in Figures 8 and 9. (Figures 3–5 and 9 have same magnification.)